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REMARKS

Applicants have received and reviewed an Office Action dated January 17, 2007. By way of response, Applicants have amended claim 1. Support for the amendment of claim 1 can be found in the specification at paragraphs [0099] and [0101]. No new matter has been inserted. Claims 1-18 are currently pending. Applicants submit that the pending claims are supported by the specification.

For the reasons given below, Applicants submit that the amended claims are in condition for allowance and notification to that effect is earnestly solicited.

35 U.S.C. § 102(e)

Claims 1-6 and 10-18 were rejected under 35 U.S.C. § 102(e) as anticipated by Loffler et al., US 20020071797 ("Loffler"). Without acquiescing to the rejection, and solely to further prosecution of the application, Applicants have amended claim 1 to more clearly set forth the nature of the invention.

As amended, claim 1 is drawn to the apparatus described in the specification and shown in at least Figure 9. Figure 9 shows, and the specification further explains, that heat exchange of the chemical reactor takes place between the heat exchange channels of the first channel arrangement and the heat exchange channels of the third channel arrangement.

This is not disclosed or taught in the apparatus of Loffler. Instead, Loffler teaches a chemical reactor that is configured for direct heat transfer between reaction zones. Thus, reactions take place in reaction zones and the heat generated by those reactions is transferred directly to a separator plate that also forms the adjacent reaction zone. In the current invention, reactions take place in reaction zones, but the heat generated in those reactions is transferred between channels that are positioned adjacent to each other, and that link reaction zones or transport reactant material. This difference is significant because direct heat transfer necessitates relatively small reaction zones. Applicants' apparatus, however, is not limited in this manner.

Claims 2-6 and 10-18 depend from claim 1. Because claim 1 is novel over the reference, claims 2-6 and 10-18 are also novel. Applicants do not otherwise acquiesce to the rejection, and reserve the right to make additional arguments as may be necessary. Withdrawal of this rejection is respectfully requested.

35 U.S.C. § 103(a)

Claims 7-9 were rejected under 35 U.S.C. § 103(a) as obvious over Loffler et al. Applicants respectfully traverse the rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met:

1. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.
2. There must be a reasonable expectation of success.
3. The prior art references, when combined, must teach or suggest all the claim limitations.

In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and must not be based on applicant's disclosure. *Id.*

In the recent Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, ___ S. Ct. ___, 2007 WL 1237837, the Court held that "the [nonobviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." However, in a memorandum regarding the recent Supreme Court Decision, issued on May 3, 2007 to the U.S.P.T.O. Technology Center Directors from Deputy Commissioner for Patent Operations Margaret Focarino, it was specifically noted that "in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." In the case of a single cited prior art reference, it stands to reason based on the Deputy Commissioner's remarks that it remains necessary to identify the

reason why a person of ordinary skill in the art would have modified the cited reference in the manner claimed.

The Examiner asserts that claims 7-9 represent a mere rearrangement of the parts taught by Loffler, and as such are obvious to one of ordinary skill. However, Applicants have established above that the configuration of claim 1 is novel over Loffler and is not a simple rearrangement of the parts of Loffler. Thus, dependent claims 7-9 are also not rearrangements of the parts of Loffler.

As noted above, the cited reference does not teach Applicants' invention of claim 1. Providing for heat exchange between channels, as opposed to direct transfer, is not a feature of the reference disclosure. The prior art further contains no motivation or suggestion to provide Applicants' configuration. The separator plates of Loffler, which accomplish the direct heat transfer, are coated or otherwise imbued with catalyst materials on both sides ("bi-catalyst separator plates"); see e.g. paragraphs [0030], [0032], and [0034]. This is because in use, both sides of the separator plates of Loffler are in touching relation to reactant in the separated reaction streams. The separation plate configuration of Loffler necessitates direct heat transfer between reaction paths. This feature teaches away from any notion of separated channels, which are not possible employing separator plates having catalyst coated on both sides. Thus, there is no motivation or suggestion to provide separate channels for heat exchange in the teaching of the reference.

Additionally, because heat transfer is less efficient using Applicants' configuration, Applicants' configuration cannot be said to be a simple optimization of the design of Loffler. The advantages of Applicants' invention over the teaching of Loffler are significant, though not immediately apparent. By way of example, Applicants' invention allows for easy replacement of spent catalyst in various reaction paths with ease, because the channels are physically isolated. Additionally, it is possible to build larger reaction chambers using Applicants' invention than using the configuration of Loffler, as heat is more evenly distributed over a path length compared to the configuration of Loffler.

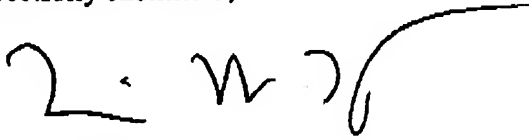
Accordingly, based on the foregoing differences, Applicants respectfully submit that the cited references neither teach nor suggest the presently claimed invention, and withdrawal of this rejection is respectfully requested.

Summary

In view of the above amendments and remarks, Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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Date


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